KERN ORM 2UN Digital Refractometer Instruction Manual

Contents

KERN ORM 2UN Digital Refractometer

INSTRUCTION MANUAL

Carefully read through the operating manual even if you have prior experience with KERN refractometers

1. General information

1.1 Intended use

The refractometer is a measuring instrument for determining the refractive index of transparent substances in liquid or in some cases also in the solid state. It is used to observe the behaviour of light as it passes from a prism with known properties to the substance being tested.
Use of the refractometer for other purposes is contrary to its intended use and may be hazardous. The manufacturer shall not be liable for any damages caused by improper use.

1.2 Warranty

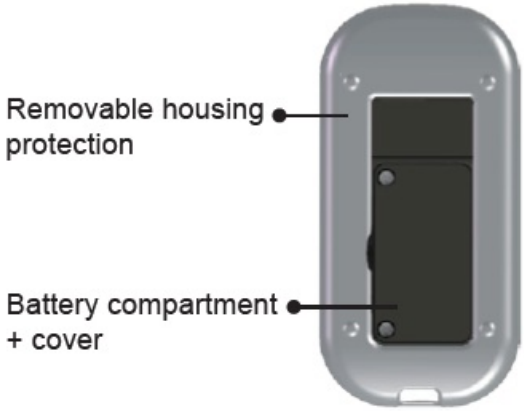
The warranty shall be void in the event of:

► Failure to observe the instructions in the operating manual
► Use for purposes other than those described
► Modifications or opening the device housing
► Mechanical damage and/or damage resulting from media, liquids, natural wear and tear

This digital refractometer cannot measure any liquid that is highly corrosive to metal or glass. When measuring liquids that are corrosive to plastics or react chemically with plastics, be careful not to drop the measured liquid onto the shell. Otherwise it will corrode the shell.

2. Introduction

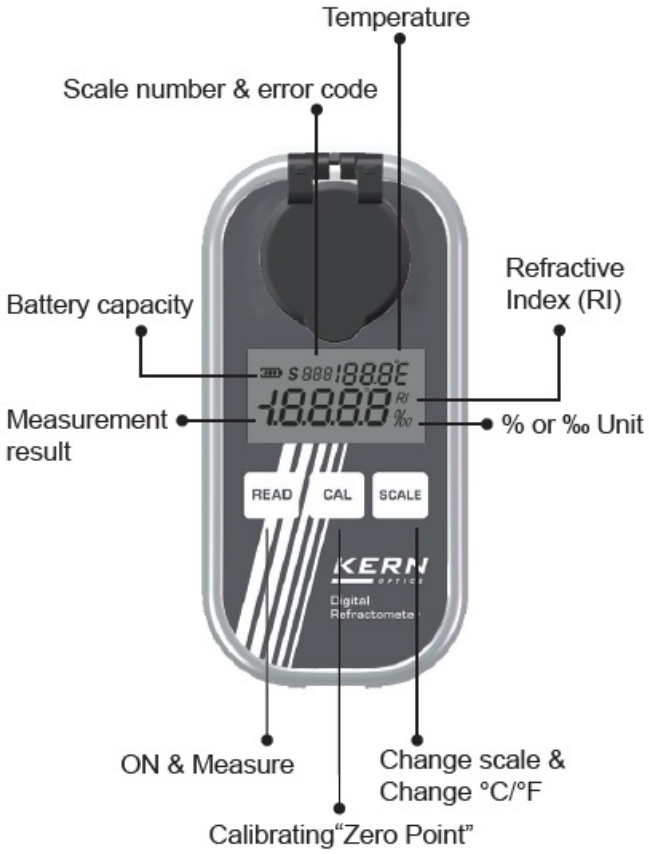
2.1 Description



2.2 Scope of delivery
1x Strorage box | 1x Digital refractometer | 1x Operating manual | 1x AAA Battery 1.5 V | 1x Pipette | 1x Screwdriver

3. Display & operating buttons

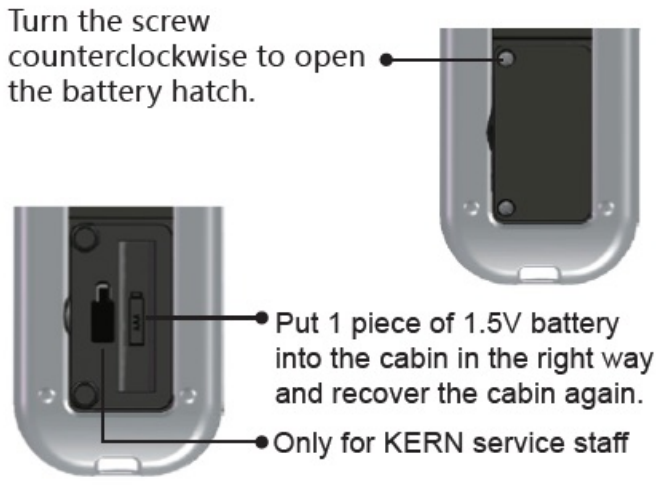
3.1 Description display & operating buttons



Note Please replace the battery when the  is displayed.

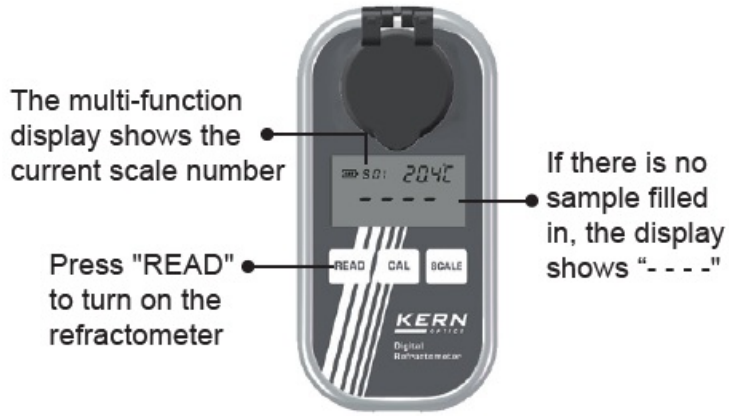
4. Preparing before operating

4.1 Install the battery



5. Turn on & measure

5.1 Turn on

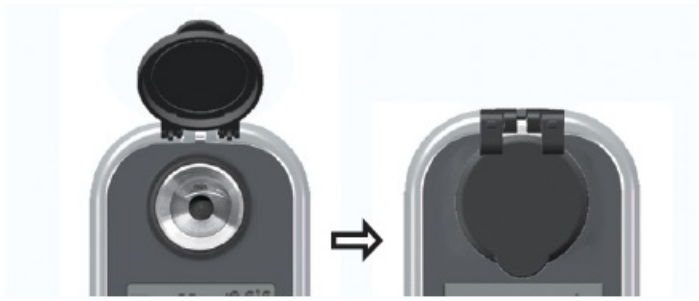


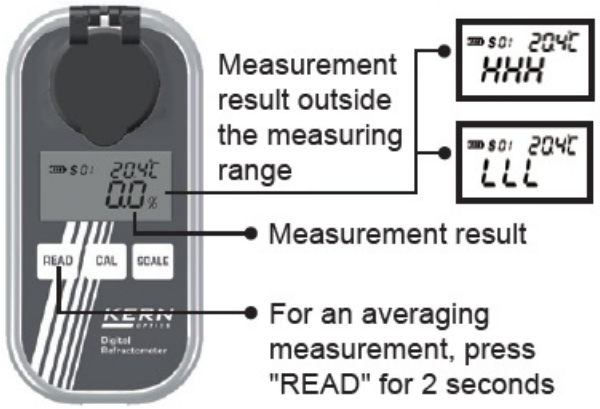
Note :

1. When used outdoors, please avoid strong light so as not to affect the measurement accuracy.
2. Please keep the instrument in a stable and still statement and position.

5.2 Measure

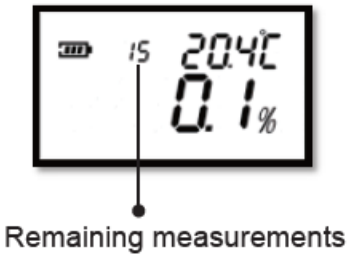
After turning on, clean the sample tank with distilled water and then dry it. Now fill the sample up to the mark, close the cover and press “READ”.





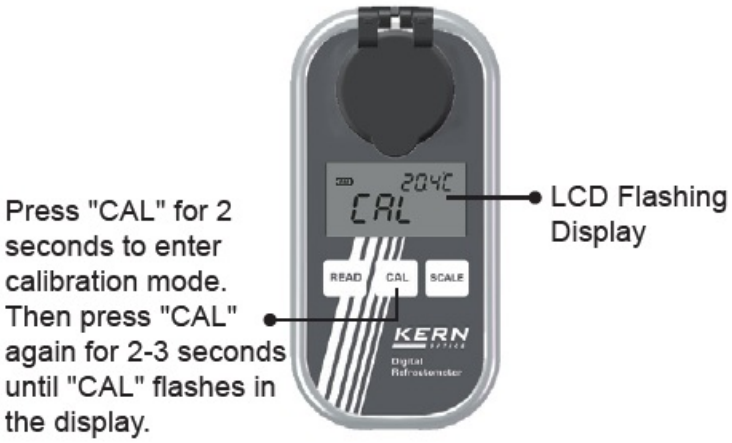
5.3 Average value measurement

Press “READ” for 2 seconds. The device starts an automatic measurement series of 15 measurements and shows the average value.
Afterwards, the device automatically turns back to the normal measuring mode.



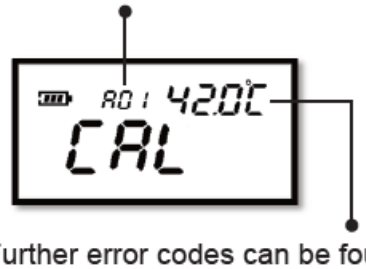
6. Calibration

The refractometer can only be calibrated with distilled water. To do this, fill the sample tank with distilled water up to the mark and close the cover.



While “CAL” is flashing in the display, press “CAL” again to start the calibration. When the calibration is finished, the display shows “End”.
After approx. 10 seconds, the device automatically returns to normal mode.

If the calibration was not completed successfully, an error code appears in the display. Here, for example, A01.

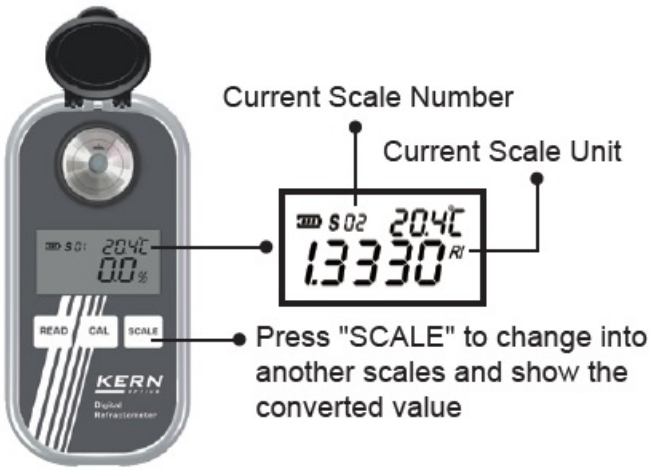


We recommend calibrating the refractometer,

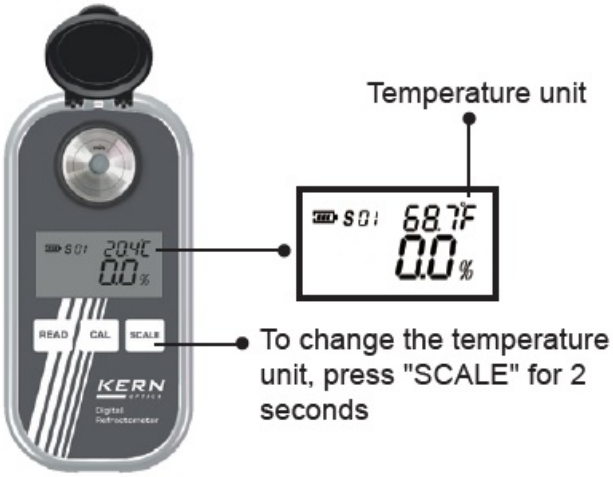
- when commissioning
- after a strong shock
- after longer transport
- after a change of location with a large temperature difference
- if the device has not been used for a long time

Always use distilled water and make sure that the refractometer, the water and the environment are at the same temperature.

7. Changing scale & termperature unit

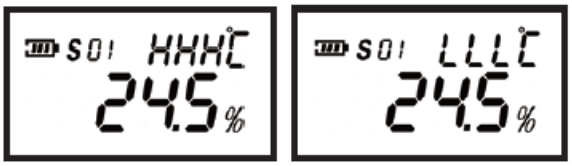


7.1 Changing scale



7.2 Changing termperature unit

If exceed the temperature limitations, the signs “HHH” or “LLL” would show



8. Turning off

If without any operations for 1 minute, the instrument would be automatically turned off

9. Cleaning & maintenance

1. To avoid damages to the prism and the sample tank, clean them with distilled water after each use.
2. Dry it with a soft cloth afterwards.
3. Do not use hard or abrasive objects for cleaning.
4. Do not leave any residue in the sample tank.
5. If the refractometer is not going to be used for a longer time, remove the battery and store it at a We recommend calibrating the refractometer, cool and dry place.

10. Disposal

The packaging consists of environmentally friendly materials which can be disposed of via local recycling facilities. The device and storage box should be disposed

11. Technical data

Scale +accuracy+ resolution	Oepents to the model
Temperature	o,o -40,o•c / 32,o- 104,o'F
AutomaticTemperature Compensation	Yes
Minimumsample volume	0.2 – 0.3 ml (Marking ring)
AUTO-OFF	60 seconds
Averagingmeasurement	15measurements
Banery	1 xAAA 1.5 V
Lifetime of thebattery	Approx. 10.000 measurements
Overall dimensions LxWxH	12Sx6Sx30 mm
Net weight	140 g (without battery)

12. Error codes

A01	Beyond the scope of calibration temperature. (0.0°C~40.0°C)
A02	During calibration, no solution or solution wrong.
A03	This instrument has a hardware failure.

	Model	Scale	No.	Range	Unit	Resolution	Accuracy
	ORM 50BM	Brix	S01	0.0 ~50 .0	%	0.1%	±0.2 %
		Refractive Index	S02	1.3330 ~1.4200	nD	0.0001nD	±0.0003nD
	ORM 1RS	Brix	S01	0.0 ~90 .0	%	0.1%	±0.2 %
		Refractive Index	S02	1.330~ 1.5177	nD	0.0001nD	±0.0003nD
Fructose	ORM 1SU	Fructose	S01	0.0 ~68 .9	%	0.1%	±0.2 %
		Glucose	S02	0.0 ~59 .9	%	0.1%	±0.2 %
		Brix	S03	0.0 ~90 .0	%	0.1%	±0.2 %
	ORM 2SU	Lactose	S01	0.0~16.5	%	0.1%	±0.2%
	Maltose		S02	0.0 ~15 .6	%	0.1%	±0.2 %
	Dextran		S03	0.0 ~10 .6	%	0.1%	±0.2 %
	Brix		S04	0.0 ~50 .0	%	0.1%	±0.2 %
Honey Baume	Honey	ORM 1HO	Honey Water	S01	5.0~38.0	%	0.1%	±0.2%
				S02	33.0~48.0	°Bé	0.1	±0.2
Brix			S03	0.0 ~90 .0	%	0.1%	±0.2 %

Refractive Index	S04	1.3330 ~1.5177	nD	0.0001nD	±0.0003nD		

Refractive Index			S04	1.3330~1.5177	nD	0.0001nD	±0.0003nD							
Salinity	ORM 1NA	Salinity (NaCl) %	S01	0.0~28.0	%	0.1%	±0.2%							
		Salinity (NaCl) ‰	S02	0~280	‰	1‰	±2‰	Specific Weight	S03	1.000~1.220	–	0.001	±0.002	
		Brix	S04	0.0~50.0	%	0.1%	±0.2%							
		Refractive Index	S05	1.3330~1.4200	nD	0.0001nD	±0.0003nD	ORM 1SW	Salinity Seawater	S01	0~100	‰	1‰	±2‰
		Chlorinity Seawater	S02	0~57	‰	1‰	±2‰							
	Specific Weight	S03	1.000~1.070	–	0.001	±0.002								
	Brix	S04	0.0~50.0	%	0.1%	±0.2%								
	Refractive Index	S05	1.3330~1.4200	nD	0.0001nD	±0.0003nD								
	Alcohol	ORM 1AL	Alcohol Mass.	S01	0~72	%	1%	±1%						
			Alcohol Vol.	S02	0~80	%	1%	±1%						
Brix			S03	0.0~50.0	%	0.1%	±0.2%							
Refractive Index			S04	1.3330~1.4200	nD	0.0001nD	±0.0003nD							
				0.0										

Beer	ORM 1BR	Plato	S01	~30.5	°P	0.1	±0.3	SG Wort	S02	1.000~1.130	–	0.001	±0.002
		Brix	S03	0.0~50.0	%	0.1%	±0.2%						
		Refractive Index	S04	1.3330~1.4200	nD	0.0001nD	±0.0003nD						
		Wine	ORM 1WN	Oechsle	S01	0~150	°Oe	1	±2				
Vol%	S02			0.0~22.0	%	0.1%	±0.2%						
KMW (Babo)	S03			0.0~25.0	–	0.1	±0.2						
Brix	S04			0.0~50.0	%	0.1%	±0.2%						
ORM 2WN	Oechsle France		S01	0~230	°Oe	1	±2						
	Vol%		S02	0.0~22.0	%	0.1%	±0.2%						
	KMW (Babo)		S03	0.0~25.0	–	0.1	±0.2						
	Brix		S04	0.0~50.0	%	0.1%	±0.2%						
Coffee	ORM 1CO	Coffee TDS 1	S01	0.0~25.0	–	0.1	±0.2						
		Brix	S02	0.0~50.0	%	0.1%	±0.2%						
		Refractive Index	S03	1.3330~1.4200	nD	0.0001nD	±0.0003nD	ORM 2CO	Coffee TDS 2	S01	0.00~25.00	–	0.01	±0.20

	Brix	S02	0.00~30.00	%	0.01%	±0.20%		
	Refractive Index	S03	1.3330~1.4200	nD	0.0001nD	±0.0003nD		
			Urine Human	S01	1.000~1.050	–	0.001	±0.002
Serum Protein			S02	0.0~12.0	g/100ml	0.1	±0.2	
Brix		ORM 1UN	S03	0.0~50.0	%	0.1%	±0.2%	
Refractive Index			S04	1.3330~1.4200	nD	0.0001nD	±0.0003nD	
ORM 2UN	Urine	Urine Cat	S01	1.000~1.060	–	0.001	±0.002	
		Urine Dog	S02	1.000~1.060	–	0.001	±0.002	
		Brix	S03	0.0~50.0	%	0.1%	±0.2%	
		Refractive Index	S04	1.3330~1.4200	nD	0.0001nD	±0.0003nD	
		Cleaner	S01	(-60.0)~0.0	℃	0.1℃	±0.5℃	
		AdBlue®	S02	0.0~51.0	%	0.1%	±0.2%	
		Battery Fluid	S03	1.000~1.500	–	0.001	±0.005	

Car / Industry	ORM 1CA	Brix	S04	0.0 ~50 .0	%	0.1%	±0.2 %
		Refractive Index	S05	1.3330 ~1.4200	nD	0.0001nD	±0.0003nD
		Ethylenglycol (%)	S01	0.0 ~100.0	%	0.1%	±0.5 %
		Ethylenglycol (°C)	S02	(-50 .0)~ 0.0	℃	0.1 ℃	±0.5 ℃
		Propylenglycol (%)	S03	0.0 ~100.0	%	0.1%	±0.5 %
	ORM 2CA	Propylenglycol (°C)	S04	(-60 .0)~ 0.0	℃	0.1 ℃	±0.5 ℃
		Brix	S05	0.0 ~90 .0	%	0.1%	±0.2 %

Specifications

- Measuring instrument: Refractometer
- Measurement type: Refractive index of transparent substances
- Display: LCD Multi-function display
- Material: Stainless steel sample tank
- Power source: 1.5V AAA Battery

Frequently Asked Questions (FAQ)

Q: What should I do if an error code is displayed?

A: Check the error code in the manual to identify the issue. If needed, recalibrate the refractometer following the calibration instructions.

Q: Can the refractometer measure highly corrosive liquids?

A: No, the digital refractometer cannot measure liquids highly corrosive to metal or glass. Be cautious with liquids corrosive to plastics to avoid damaging the device.

Documents / Resources

	KERN ORM 2UN Digital Refractometer [pdf] Instruction Manual ORM 2UN, P -V1.5.240906, ORM 2UN Digital Refractometer, ORM 2UN, Digital Refractometer, Refractometer

References

- User Manual